

APPENDIX A

PRESENT, ONGOING, AND REASONABLY FORESEEABLE FUTURE ACTIONS

Present and Ongoing Actions on National Forest System Land

Present and ongoing actions were considered in the cumulative effects analysis. There are many actions occurring at any given time on National Forest System land. Those that have a cumulative effect with the alternatives are discussed in the individual resource sections.

The main routine present and ongoing actions are listed below. Those that have a cumulative effect with the alternatives are discussed in the individual resource sections.

- Road Maintenance, including hazard tree removal
- Trail Maintenance
- Developed Campground Maintenance
- Respect the River (Improved Site) Maintenance
- Firewood and other Special Forest Products Gathering
- Livestock Grazing on Grazing Allotments
- Noxious Weed/Invasive Species Control
- Mining Operations
- Recreation and Non-Recreation Special Use Permits
- Fire Suppression

The following table includes information about specific ongoing projects on the Forest. While this includes the major ongoing projects, it is not meant to be an exhaustive list of current projects, but rather those that could have cumulative effects with the Travel Management alternatives.

Table A-1. Ongoing Actions on Okanogan Wenatchee National Forest

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| Restoration Projects | <i>Projects will improve forest health, and reduce fuel loading. Projects will comply with all Forest Plan standards and guidelines, and all laws, including the Endangered Species Act. Transportation System Management will be part of each project and will reduce open road density by closing some roads (maintenance level 1) and decommissioning others. Overall result will be a decrease in open road mileage in each project area.</i> | |
| Project Name | Location | Project Details |
| Teanaway Project | Cle Elum Ranger District | 3,176 acres of silvicultural treatments, including 975 commercial thinning, 67 acres of precommercial thinning, 2,111 unburning, close 1.3 miles of road |
| Walter Springs | Cle Elum Ranger District | 1,654 acres of silvicultural treatments, including 619 acres of commercial thinning, 17 acres precommercial thinning, 1,017 acres of unburning, closing 0.9 miles of unauthorized roads, and 1.7 miles of system road. |

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| Table Mountain Fire Reforestation | Cle Elum Ranger District | Replant a portion of the Table Mountain Fire area, within Late Successional Reserve |
| Iron Thin | Cle Elum Ranger District | 2,282 acres of silvicultural treatments, including 1,703 acres of commercial thinning, 439 acres of underburning, 140 acres of precommercial thinning |
| Moe Forest Restoration | Entiat Ranger District | 1,414 acres of thinning, piling, pile burning, and underburning |
| Preston Fox | Entiat Ranger District | 5,217 acres of prescribed burning, 1,137 acres of thinning. |
| Buck Forest and Fuels | Methow Valley Ranger District | Reduce surface and ladder fuels on 8,181 acres through commercial thinning, precommercial thinning, and prescribed burning, decommissioning or closing 40.7 miles of road |
| Glass Angel Restoration | Naches Ranger District | 783 acres of commercial and precommercial thinning, 4,392 acres of fuels treatments |
| Baily Restoration | Tonasket Ranger District | 2,938 acres of commercial treatments; 4,602 acres of non-commercial treatments; up to 6,002 acres of underburning, and 3.86 miles of roads would be decommissioned |
| Crawfish Restoration | Tonasket Ranger District | 2,222 acres of commercial treatments and fuels reduction; 2,814 acres of non-commercial treatments including pre-commercial thinning, pruning, hand or machine piling, and underburning; add 17.7 miles of unauthorized road to the system, and decommission or close 25.8 miles of road, and improve approximately 39 stream crossings |
| Transportation System Management | <i>Project will reduce open road density by closing some roads (maintenance level 1) and decommissioning others. Overall result will be a decrease in open road mileage in the project area.</i> | |
| Project Name | Location | Project Details |
| Gold Creek Bridge Replacement | Cle Elum Ranger District | Replace the Gold Creek Bridge and repair Forest Road 4832. |
| Jack Creek Culvert Removal | Cle Elum Ranger District | Remove culvert on Forest Road 9738114 to restore fish passage. Relocate 855 feet of road away from occupied MCR steelhead habitat. |
| Forest Road 3300 Flood Repair | Cle Elum Ranger District | Restore road damaged by flood, and reconnect the floodplain. |
| Peshastin Chumstick Road Decommissioning | Wenatchee River Ranger District | Decommission 51.7 miles of road. Convert 11.7 miles of road to ATV trail. |
| Fuels Reduction/Management | <i>Projects will reduce fuel loading, improving forest health and reducing the risk of wildfire.</i> | |
| Project Name | Location | Project Details |
| Falls Coyote Fuels Reduction | Chelan Ranger District | 5,394 acres of underburning, 850 acres of precommercial thinning, 483 acres of mechanical fuel treatment |
| Bear Mountain Fuels Reduction | Chelan Ranger District | 1,000 acres of piling and burning |
| Forest Mountain Fuels Reduction | Chelan Ranger District | 200 acres of thinning, piling and burning, and underburning; 1,798 acres of under burning, and 125 acres of commercial salvage logging |
| East Pine Zone Fuel Reduction | Entiat Ranger District | Complete prescribed burning on 6,820 acres. |

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| East Pine Zone Non-Commercial thinning and Prescribed fire | Entiat Ranger District | Thin and prescribed burn 17,000 acres |
| Bannon Precommercial Thinning | Tonasket Ranger District | 2013 – 205 acres; 2014 – 138 acres; 2015 – 291 acres; and 2016 – proposed 207 acres. 2015 to 2016- 26 acres treated |
| Recreation/Trails | | |
| Project Name | Location | Project Details |
| Ken Wilcox Hazard Tree | Cle Elum Ranger District | Hazard trees will be felled in the 17-acre Ken Wilcox Horsecamp |
| Aquatic Habitat Restoration | | |
| <i>Projects will improve aquatic habitat in project area, and will comply with all forest plan standards and guidelines and applicable laws.</i> | | |
| Project Name | Location | Project Details |
| Upper Cle Elum Floodplain Restoration | Cle Elum Ranger District | A combination of projects will improve fish habitat in the Cle Elum River. Engineered log jams and other habitat improvement structures will be installed. A 150-foot setback will be established for dispersed camping. Dispersed campsites in the floodplain will be decommissioned, others will have boundaries delineated. Dispersed campsites along another 18 mile stretch will be modified to protect riparian and late successional habitat. New parking and camping opportunities will be created on terraces elevated about the flood plain. Campsites within the floodplain will be decommissioned. |
| Chewuch River Restoration RM13-15 | Methow Valley Ranger District | A series of fish habitat improvement projects in River Mile 13 to 15 of the Chewuch River. Improvements include engineered log jams, backwater channel enhancement, and cover habitat. |
| Mining Activities | | |
| <i>Plans of Operations submitted by claimants modified by mitigation to reduce environmental impacts.</i> | | |
| Project Name | Location | Project Details |
| Holden Mine Remediation | Chelan Ranger District | Remediation actions at the Holden Mine. |
| Bossart Core Hole Drilling | Cle Elum Ranger District | Exploratory core drilling |
| Merry Widow, Golden Promise, McCoy and Southern Star | Cle Elum Ranger District | Approved individual mining plans of operation |
| Carlsen Blue Mining Project | Cle Elum Ranger District | 6 contiguous mining claims totaling 120 acres, excavations and surface mining. |

Reasonably Foreseeable Future Actions on National Forest System Land

The list of reasonably foreseeable future actions was compiled by consulting the Schedule of Proposed Actions for the Okanogan-Wenatchee National Forest, and by contacting neighboring Federal, State, and Local governments to obtain lists of future projects. Reasonable attempts were made to compile a complete list, but it is likely that some projects are not included because agencies did not respond, new projects have surfaced since publication of the Travel Management EA, or projects that were on hold were reactivated.

The following table includes the reasonably foreseeable future actions planned for the Okanogan-Wenatchee National Forest.

Table A-2. Reasonably Foreseeable Future Forest Service Projects on Okanogan-Wenatchee National Forest

| Restoration Projects | | |
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| <i>Projects will improve forest health, and reduce fuel loading. Projects will comply with all Forest Plan standards and guidelines, and all laws, including the Endangered Species Act. Transportation System Management will be part of each project and will reduce open road density by closing some roads (maintenance level 1) and decommissioning others. Overall result will be a decrease in open road mileage in each project area.</i> | | |
| Project Name | Location | Project Details |
| Swauk Pine Restoration | Cle Elum Ranger District | Proposed action would treat 5,244 acres: harvest and underburn approximately 2300 acres, and underburn an additional 2,062 acres; thin 60 acres; protect legacy trees on 510 acres; riparian large wood enhancement 240 acres; and aspen regen/meadow enhancement w/prescribed fire 71 acres. Approximately 4.8 miles of maintenance level 1 road would be decommissioned; decommission 2.7 miles of currently open road; relocate 0.5 miles of a system jeep trail; change 1.1 miles from mixed use to jeep only; restore hill-climb area. |
| Upper Yakima Restoration | Cle Elum Ranger District | Watershed restoration project. Forest commercial and pre-commercial thinning designed to accelerate old growth forest structure, watershed restoration, road obliteration, and road to trail conversion. |
| South Summit Forest and Fuels II | Methow Valley Ranger District | Proposed action would manage vegetation on 11,635 acres, with a combination of commercial and precommercial thinning, regeneration harvest, and tree planting. Fuels would be treated on 9,900 acres, with a combination of piling and burning and underburning. 20 miles of road would be closed, and 68 miles of unauthorized road would be decommissioned. |
| Little Crow Restoration | Naches Ranger District | Proposed action would harvest approximately 6,500 acres, non-commercially thin 14,500 acres; prescribed burn up to 24,800 acres; plant 204 acres; supplement 5 miles of stream with large woody debris; improve 10 acres of streambank habitat; close or decommission 35 miles of system road; complete structural upgrades on 119 miles of road; treat invasive species on 2,500 acres; remove hazard trees from Little Naches Recreation Residence tract; improve Raven Roost trailhead; construct up to 3.4 miles of beginner level learner loops at Crow Creek Campground, Long Meadow, and/or Ponderosa Camp dispersed sites. |
| Microwave Project | Naches Ranger District | Project will restore 2900 acres of NFS land with commercial and non-commercial thinning, piling, and burning (850 acres) |
| Annie Restoration Project | Tonasket Ranger District | Proposed action would commercially treat 1,713 acres with a combination of restoration, thinning, sanitation, and shelterwood harvest, and non-commercially treat approximately 1,710 acres with a combination of underburning, ladder fuel reduction, prescribed burning in riparian areas, and precommercial thinning. Approximately |

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| | | 1.3 miles of system road would be decommissioned, in addition to 7 miles of unauthorized road. Approximately 5.4 miles of road would be closed (maintenance level 1), and 1.7 miles of unauthorized road would be added to the official road system. |
| Light Restoration Project | Tonasket Ranger District | Proposal is to thin 3,243 acres, precommercial thin 5,091 acres, prescribed burn 5,711 acres, add 5.5 miles of unauthorized roads to the road system, and decommission 3.3 miles of unauthorized road. |
| Transportation System Management | <i>Project will reduce open road density by closing some roads (maintenance level 1) and decommissioning others. Overall result will be a decrease in open road mileage in the project area.</i> | |
| Project Name | Location | Project Details |
| Chewuch Transportation Plan | Methow Valley Ranger District | Proposed action would close or decommission approximately 118 miles of road in the Chewuch Watershed. |
| Fuels Reduction/Management | <i>Projects will reduce fuel loading, improving forest health and reducing the risk of wildfire.</i> | |
| Project Name | Location | Project Details |
| Crum Canyon | Entiat Ranger District | Proposed action is to thin and prescribed burn 1,427 acres in the Crum Canyon area. |
| Lost Driveway | Methow Valley Ranger District | Project would thin and do prescribed burning on approximately 2,860 acres in the Upper Methow Valley. |
| Mission Area Prescribed Maintenance Burning Project | Wenatchee River Ranger District | Hazardous fuel project with noncommercial thinning, prescribed burning, piling and burning, and jackpot burning (approx. 4500ac) |
| Aquatic Habitat Restoration | <i>Projects will improve aquatic habitat in project area, and will comply with all forest plan standards and guidelines and applicable laws.</i> | |
| Project Name | Location | Project Details |
| Chewuch River Restoration RM 13-15.5 | Methow Valley Ranger District | Project would install engineered fish habitat structures in the Chewuch River to improve fish habitat. |
| Peshastin Creek Culvert Replacement Project | Wenatchee River Ranger District | Provide road/stream crossing that allows for fish passage and flood flows by replacing current undersized culvert with bridge |
| Nason Creek: Upper White Pine Reach Aquatic Habitat Restoration Project | Wenatchee River Ranger District | Project would implement aquatic habitat improvement in Upper White Pine, including restoring some meanders and removing a power line out from the riparian area. |
| Road Maintenance/Management | <i>Projects will improve condition of road and improve fish passage. Will comply with all forest plan standards and guidelines and applicable laws.</i> | |
| Project Name | Location | Project Details |
| Deadhorse River Road Culvert Replacement CE | Wenatchee River Ranger District | Project would replace the Deadhorse River culvert with a fish passage culvert. |
| Invasive Species | <i>Project will help control or eradicate invasive species, helping to restore native plant species and communities.</i> | |
| Project Name | Location | Project Details |
| Forest-wide Invasive Species EIS | Forest-Wide | Project will allow expanded control of invasive species, including the use of targeted, reduced impact herbicides. |

| Special Use Permits | <i>Projects will comply with all forest plan standards and guidelines, and applicable laws.</i> | |
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| Project Name | Location | Project Details |
| Sno-tel Sites | Forest-wide | Project would issue a special use permit to install and operate snotel sites across the forest. |
| Geologic Monitoring Station | Cle Elum Ranger District | Project would issue a special use permit for a geologic monitoring station. |
| Powerline Tree Disposal | Cle Elum Ranger District | Project would remove hazard trees along a permitted power corridor. |
| Explosives magazine for avalanche control on I90. | Cle Elum Ranger District | Modify an existing long-term special use permit issued to the Washington State Department of Transportation, to allow installation and use of a second explosives magazine adjacent to one already in place. |
| Spencer Canyon Fault Investigation | Entiat Ranger District | Issue a permit to excavate two hand dug trenches across the Spencer Canyon scarp to assess potential earthquake activity. |
| Skyline Ditch Permit Renewal | Methow Valley Ranger District | Project would renew the special use permit for the Skyline Ditch. |
| Eightmile Ranch Coho Acclimation Site | Methow Valley Ranger District | Project would issue a special use permit for construction and operation/maintenance of coho acclimation ponds at the Eightmile Ranch. |
| Pack and Saddle Stock Special Use Permits | Methow Valley Ranger District | Project would issue 10-year outfitter-guide permits to pack and saddle stock outfitter-guides operating on the Methow, Tonasket, and Chelan Ranger Districts. |
| Permit Renewal for Preexisting Permits Summer 2013 | Naches Ranger District | Proposal would issue a special use permits for all areas associated with Bear Cove Cabins, Inc. on Rimrock Lake. |
| PacifiCorp Gold Hill Repeater | Naches Ranger District | Project would issue a SUP for Pacific Power to take over the use and maint. of Gold Hill repeater. |
| Benton REA Hazard Tree Removal project 3 | Naches Ranger District | Project will issue 20-year permit for BREA to remove hazard trees along power line. |
| Ski Area SUP | Naches Ranger District | Special use permit for the operation of White Pass Ski Area on US Forest Service |
| White Pass Projects | Naches Ranger District | Project would issue a SUP for additional x-country ski trails operated by White Pass Ski Area |
| Livestock Area SUP | Naches Ranger District | SUP for livestock grazing on the District. |
| Corral Resort SUP | Naches Ranger District | SUP for horseback riding and outfitter guiding services |
| Boat Club SUP | Naches Ranger District | Re-issue of SUP for parking and dock use on Rimrock Lake. |
| Pacific Northwest Navy Range Special Use Permit | Tonasket Ranger District | Special use permit for US Navy to park trunks on existing roads on the district to conduct training exercises. |
| Wagon Trips Special Use Permit | Tonasket Ranger District | Special use permit for horse-drawn wagon trips. |
| Yakama Nation Hatchery Utility Line CE | Wenatchee River Ranger District | Special Use permit for utility line beneath/adjacent to Forest Service road to new Yakama fish hatchery |
| McKenzie-Beverly 115Kv Electric Transmission Line Permit | Wenatchee River Ranger District | Re-issue of special use permit to Chelan County PUD for power transmission line |

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| Recreation Residences SUP | Wenatchee River Ranger District | Re-issue of isolated rec residence SUP |
| Various Water Transmission Lines and Storage Tank Re-Issuance Permits CE | Wenatchee River Ranger District | Re-issuance of new term permits for existing water transmission lines and water storage tanks across the district |
| Trout Unlimited Icicle Creek Fish Passage Study CE | Wenatchee River Ranger District | Issuance of permit to remove 4-5 boulders from Icicle Creek, transport to new location on NFS lands to break apart using explosives and return to creek |
| Mission Ridge Ski and Board Resort Improvements | Wenatchee River Ranger District | Issuance of a permit for night lights along a ski run and a sun deck along another run |
| Ski Hill Improvements EA | Wenatchee River Ranger District | EA to determine effects of issuing a permit for construction of a deck, septic fields, new restrooms and other minor improvements to Ski Hill lodge |
| Special Use Permit Issuance – Wenatchee River Isolated Residence | Wenatchee River Ranger District | Re-issue of isolated rec residence SUP |
| Minerals | <i>Projects will disclose environmental impacts and include mitigation for submitted plans of operation from claimants.</i> | |
| Project Name | Location | Project Details |
| Ferris Hard Rock Mining | Cle Elum Ranger District | Project would disclose impacts and specify mitigation measures for underground exploration work in a re-existing tunnel. Cross country travel would be authorized to reach site. |
| Southern Star | Cle Elum Ranger District | Project would disclose impacts and specify mitigation measures for road use and maintenance, underground mining, and processing of some ore on site. |
| Flagg Mountain Mineral Exploration | Methow Valley Ranger District | Project would disclose impacts and specify mitigation measures for an exploratory drilling project in the Flagg Mountain area. Approximately 15 drill sites would be used, all along existing roads. |
| Buckhorn Outfall | Tonasket Ranger District | Project currently on hold. Proposing some locations for outfall of treated water from the Bunkhorn Mine. |
| Recreation | <i>Projects will improve recreation sites and experience. All projects will comply with all forest plan standards and guidelines, and applicable laws.</i> | |
| Project Name | Location | Project Details |
| WATV Routes | Forest-wide | 350 miles of road will be designated open for WATVs. |
| Meadow Creek Re-Route | Chelan Ranger District | Reconstruct and construct approximately 2500 feet of trail, install a footlog (bridge) across Meadow Creek on the Lakeshore Trail #1247 to repair flash flood damage. |
| Lake Chelan Campground Prince Creek Dock Replacement | Chelan Ranger District | Project would replace the dock at Prince Creek. |
| Box Canyon Trail | Chelan Ranger District | Proposal is to construct a non-motorized trail along the south shore of Lake Chelan. |
| Silver Falls Interpretive Trail Hazard Tree Removal | Entiat Ranger District check | Hazard trees in the Silver Falls recreation area would be removed. |
| 2014 West Side Recreation Projects | Tonasket Ranger District | Establishing ATV trailheads, improving a wilderness trailhead. |
| Bonaparte Lake and Lost Lake Recreation Projects | Tonasket Ranger District | Proposed to establish a group site, install a swimming dock at Bonaparte Lake. Install a gazebo at the existing group site at Lost Lake. |

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| Fishing Dock Replacement | Tonasket Ranger District | Install new fishing docks at Beth, Beaver, Lost, and Little Beaver Lake. Repair the fishing dock at Bonaparte Lake. |
| Ski Hills Trails CE | Wenatchee River Ranger District | Project to provide needed trail construction for trail connections for the Ski Hill-Freund Trail system. |
| Number Two Canyon Trail System EA | Wenatchee River Ranger District | Project would authorize construction of approximately 25 miles of mountain bike trails in the Number 2 Canyon area near Wenatchee. |
| Facilities | <i>Project will dispose of excess facilities</i> | |
| Project Name | Location | Project Details |
| Conconully Compound Disposal | Tonasket Ranger District | Project would authorize disposal of Forest Service buildings in Conconully Washington. |
| Communication Site | <i>Projects will improve facilities at existing communication sites.</i> | |
| Project Name | Location | Project Details |
| Round Mountain AT&T Communications Site Additions CE | Wenatchee River Ranger District | Permit to excavate for additional storage area next to existing facility and construct retaining wall |
| Blag Mountain Communication Site EA | Wenatchee River Ranger District | Permit to replace existing site building with larger one, excavate for new concrete pad for new building and additional propane tanks, add 250 feet of road |
| Diamondhead Communication Site Additions CE | Wenatchee River Ranger District | Issuance of a permit for additional propane tanks at an existing communication site |
| Boundary Butte Communication Site Additions CE | Wenatchee River Ranger District | Issuance of a permit for additional propane tanks at an existing communication site |

Ongoing and Reasonably Foreseeable Future Action on Non-National Forest System Land

The following actions were identified for adjacent, non-National Forest System lands. A reasonable effort was made to search websites and to make personal contacts for a variety of federal, state, and country and non-profit agencies; however this table of actions likely does not include all possible actions on adjacent lands due to unanticipated projects being added, projects being dropped, lack of response from other agencies, or other reasons. The list does provide an adequate representation of non-Forest Service actions to determine the cumulative effects of the alternatives considered in the EA. Detailed information about each project can be obtained by contacting the responsible agency.

The Yakima Basin Integrated Water Resource Management Plan is described following the table.

Table A3. Ongoing and Reasonably Foreseeable Future Actions on non-National Forest System Lands

| Road Maintenance and Management | | |
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| Project Name | Location | Project Details |
| WATV Routes | Okanogan, Chelan, Douglas, and Kittitas Counties | Most county roads with speed limits less than 35 miles per hour are open to WATVs, providing hundreds of miles of riding opportunities. |
| WADNR C-1200-3A Fish Passage | Ahtanum State Forest | Installation of bottomless arch structure for improved fish passage |
| WADNR T-5000-9 Fish Passage | Teanaway Community Forest | Installation of bottomless arch structure for improved fish passage |
| WADNR T-5000-17 Fish Passage | Teanaway Community Forest | Installation of bottomless arch structure for improved fish passage |
| WADNR Carlson Bridge | Teanaway Community Forest | Replacement of Bridge structure due to damage |
| WADNR N-1000 Road | Naneum Ridge State Forest | Relocation of stream adjacent parallel road to reduce potential for sediment delivery. |
| WA DOT I-90 Project | I-90 | Entails clearing forest adjacent to I-90, blasting rock, storing trees and rock, selling timber decks, etc. |
| Forest Improvement Treatments | | |
| Project Name | Location | Project Details |
| WADNR Stirrup | Ahtanum State Forest | Treatment to reduce stocking of stands within Forest Health Hazard Warning Area. |
| Fuels Reduction | | |
| Project Name | Location | Project Details |
| BLM Brisky Canyon Fuels Reduction | Brisky Canyon | Thin and remove commercial sized trees, thin, pile and burn small trees and brush. |
| BLM West Pine Zone Fuels Reduction | | Hand/mechanical non-commercial thinning and prescribed fire. |
| Recreation Plan Implementation | | |
| Project Name | Location | Project Details |
| WADNR Naneum to Columbia River Recreation Plan | Naneum Ridge State Forest | Implement projects identified in plan related to motorized/non-motorized developed recreation, dispersed recreation, and Green Dot cooperative road management for public access |
| WADNR Ahtanum State Forest Recreation Plan | Ahtanum State Forest | Implement projects identified in plan related to motorized/non-motorized developed recreation, dispersed recreation, and Green Dot cooperative road management for public access |
| Recreation Plan Development | | |
| Project Name | Location | Project Details |
| WADNR Teanaway Community Forest Recreation Plan | Teanaway Community Forest | Plan will be developed to provide strategic guidance on restoration, maintenance, and development of recreation activities |
| Aquatic Restoration | | |
| Project Name | Location | Project Details |
| WADNR Indian Creek | Teanaway Community Forest | In stream log placement to increase pool habitat, cool water temperatures, stabilize stream bank erosion, and reconnect the floodplains |

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| North Yakima Conservation District | Nile Creek and Naches River | Removal of unscreened gravity irrigation diversion in Nile Creek, moving point of diversion to Naches River, installing pump and fish screen |
| WDRN/Kittitas County Conservation District | Teanaway River at Red Bridge and Seaton Diversion | Fish Passage and irrigation maintenance in Teanaway River at Red Bridge and Seaton Diversion |
| Yakama Nation Amphibian project | | Survey of amphibs (including tailed frog, western toads, northwestern salamander, cascade frog, etc.) in the forest of the Yakama Reservation |
| Cascadia Conservation District | | Various projects on private lands, including instream structures, irrigation structures and systems, well drilling and wildfire fuels reduction. Entiat River enhanced stream flow monitoring, watershed planning for the Entiat, Chelan, Wenatchee and Stemilt Squilchuck Watershed Plannign Units. Wildfire preparedness. |
| Upper Columbia Salmon Recovery Board | | Various salmon habitat implementation projects in the Entiat, Methow, Okanogan, and Wenatchee Subbasins. |
| Timber Sales | <i>Projects will generate timber volume, and comply with all State Forestry Practices Act requirements to minimize environmental effects. Projects will comply with all Federal and State laws.</i> | |
| Project Name | Location | Project Details |
| WADNR Plumback | Taneum ownership block | Timber sale to promote proper stocking, long term value to the trusts, and provide for habitat |
| WADNR Wild Plum | Taneum ownership block | Timber sale to promote proper stocking, long term value to the trusts, and provide for habitat |
| WADNR Hog Ranch | Wenas ownership block | Timber sale to promote proper stocking, long term value to the trusts, and provide for habitat |
| Confederated Tribes of the Colville Reservation West Fork Timber Sale | Adjacent to Tonasket Ranger District | |
| Confederated Tribes of the Colville Reservation Strawberry Timber Sale | Adjacent to Tonasket Ranger District | |
| Confederated Tribes of the Colville Reservation Crawfish Area lodgepole pine management | Adjacent to Tonasket Ranger District | |
| WDNR Crawdad Timber Sale | | Tree removal, pre-haul road maintenance, small amount of road construction. Eight miles southwest of Conconully. |
| Mining Projects | | |
| Project Name | Location | Project Details |
| WDNR/FS Crown Resources Gold Mine | Bukhorn Mine | Crown Resources Gold Mine on Buckhorn Mountain on private land and haul of ore to Republic. |
| Forest Management Plan | | |
| Project Name | Location | Project Details |
| WADNR Teanaway Community Forest Management Plan | Teanaway Community Forest | Provides guidance on the implementation of five restoration goals for the forest: Water quality, working lands, recreation, wildlife habitat, and community partnerships |
| Noxious Weed/Invasive Species Control | | |
| Project Name | Location | Project Details |
| WDNR | Tunk Grade Fire | Post-fire noxious weed herbicide treatment |

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| Tunk Grade Fire Noxious Weed Stabilization | | |
| WDNR Star Thistle Treatment | Bear Mountain | Yearly treatment of star thistle populations |
| Chelan Country Noxious Weed Control | County Roads | Boom spraying of paved county roads that access Forest Service land |
| Yakama Nation | | Various vegetation and invasive plant management projects: Status Creek/Yakima River Scotch thistle project, Naches River Japanese knotweed project, Yakima River purple loosestrife project, Yamkima Reservation forest tree planting/spraying project, Russian Olive status Wildlife Area project. |
| Wildlife and Fish Projects | | |
| Project Name | Location | Project Details |
| Yakama Nation | | Various non-game avian monitoring and banding projects |
| Yakama Nation | | Various habitat projects: shrub-steppe floodplain terrace restoration, shrub-steppe restoration for sage-grouse habitat, forest riparian and meadow projects, and old growth mapping |
| Yakama Nation | | Various big gam projects: California bighorn sheep reintroduction, mountain goat research, pronghorn antelope habitat analysis, mule deer study, and elk research |
| Yakama Nation | | Various sage grouse reintroduction projects: habitat assessments and restoration, reintroduction of sage grouse on Yakama reservation. |
| Yakama Nation Spotted Owl Project | | Survey of habitat in vicinity of upcoming timber sales and monitoring at known sites |
| Colville Tribe Various Fish and Wildlife Projects | | Salmon and steelhead ESA projects, resident fish and wildlife projects |
| USFWS | Wildlife Refuges | Various projects: wetland construction, migrating and wintering waterfowl habitat enhancement projects, invasive species projects, prescribed and wildland fire projects, fisheries management. |
| WDFW | Wildlife Areas | Various Species recovery and management projects, habitat restoration and projection projects, aquatic invasive species projects, and wildlife health related projects. |
| USFWS | Entiat National Fish Hatchery | Habitat improvement for fish I the Entiat River. Off-channel habitat for fish, wetland ponds. |
| Yakama Nation Mid-Cloumbia coho reintroduction feasibility project. | | To reintroduce coho salmon into the mid-Columbia River basin tributaries – Methow and Wenatchee River basins in Chelan and Okanogan counties. |
| USFWS | Winthrop National Fish Hatchery | Beaver relocation project from places where they conflict with landowners and release them in unoccupied habitat higher in the watershed in the Methow Valley. |
| Range and Livestock Management | | |
| Project Name | Location | Project Details |
| Yakama Nation | | Various Range and livestock management projects. |
| Private Landowners: Various vegetation | <i>Landowners submit projects to the Department of Natural Resources on a regular basis. The DNR reviews the project to ensure they comply with the Forest Practices</i> | |

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| management, timber harvest, road construction and other projects. | <i>Act, which ensures that all projects will meet environmental requirements, including complying with all federal and state laws, such as the Clean Water Act, Endangered Species Act, and Clean Air Act, to name a few.</i> |
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Yakima Basin Integrated Water Resource Management Plan¹

The Bureau of Reclamation and Washington Department of Ecology are currently developing and planning projects as part of the *Yakima Basin Integrated Water Resource Management Plan*. The planning and decision process for many of these projects could take many years to complete, and the funding has not been secured for every project. While these are considered reasonably foreseeable by the definition used by the Forest Service, it must be understood that final decisions have not been made, and funding has not been secured. It could easily take up to 20 years for some of the more complicated, expensive, and controversial projects to be implemented. The Integrated Plan identifies a comprehensive approach to water resources and ecosystem restoration improvements in the Yakima River basin. The Integrated Plan includes seven elements: reservoir fish passage, structural and operational changes to existing facilities, surface water storage, groundwater storage, habitat/watershed protection and enhancement, enhanced water conservation, and market reallocation. The Integrated Plan was developed to address a variety of water resource and ecosystem problems affecting fish passage and habitat and agricultural, municipal, and domestic water supplies.

The specific projects included in the Integrated Plan include:

- Reservoir Fish Passage Element (Habitat Component);
 - Provide fish passage at the five major Yakima River basin dams – Cle Elum, Bumping Lake, Tieton, Keechelus, and Kachess – as well as Clear Lake Dam.
- Structural and Operational Changes Element (Systems Modification Component);
 - Cle Elum Pool Raise,
 - Kittitas Reclamation District Canal Modifications,
 - Keechelus-to-Kachess Pipeline,
 - Subordinate Power at Roza Dam and Chandler Powerplants, and
 - Wapatox Canal Improvements.
- Surface Water Storage Element (Water Supply Component);
 - Wymer Dam and Pump Station,
 - Kachess Reservoir Inactive Storage,
 - Bumping Lake Reservoir Enlargement, and
 - Study of Columbia River Pump Exchange with Yakima Storage.
- Groundwater Storage Element (Water Supply Component);
 - Shallow Aquifer Recharge, and
 - Aquifer Storage and Recovery.
- Habitat/Watershed Protection and Enhancement Element (Habitat Component);
 - Targeted Watershed Protections and Enhancements, and
 - Mainstem Floodplain and Tributary Enhancement Program.
- Enhanced Water Conservation Element (Water Supply Component);
 - Agricultural Conservation, and

¹ Information from the Bureau of Reclamation *Executive Summary of the Yakima Basin Integrated Water Resource Management Plan, 2002*.

- Municipal and Domestic Conservation Program.
- Market Reallocation Element (Water Supply Component).

Resource Analysis

Following is a narrative summary of the environmental elements most likely to be impacted based on current evaluations. Table 1 presents a summary of impacts on all resources evaluated.

Soil

Short-term impacts to soil would be related to construction activities that may result in erosion and sedimentation. Long-term impacts would include a combination of effects, including loss of earth-related resources, permanent landscape modifications, new roads, and changes in stream channel and floodplain conditions. Implementation of the Surface Water Storage Element of the Integrated Plan would result in increased disruption of the natural sedimentation process downstream of new storage facilities, as the reservoirs trap and hold sediments. Implementation of the Integrated Plan would also likely result in a decrease in erosion potential as floodplains are reconnected, channel scouring is reduced, and as the Targeted Watershed Protection and Enhancement program is implemented and lands are protected to benefit the watershed as a whole.

Surface Water Resources

The Integrated Plan Alternative would benefit instream flows and improve the reliability of water supply for agriculture and municipal and domestic uses. Construction activities could cause temporary disruptions in water deliveries to water users, alter the timing and quantity of streamflows, or TWSA. These disruptions would be coordinated to minimize impacts to water users and streamflows. Surface water bodies could be temporarily diverted from their typical locations. Long-term improvements in water supply would be reflected in increases in TWSA, end-of-season reservoir storage, and improved streamflows for fish. The reliability of water supply for irrigators would be improved to minimize economic losses during drought years. Water supply improvements would provide flexibility to adapt to climate change.

Groundwater

Short-term impacts of groundwater are limited to potential reduced usability of wells in the immediate vicinity of construction sites caused by dewatering during construction. Impacts would be temporary and are likely to be minor. Long-term groundwater levels and quantity are expected to increase through additional recharge from irrigation deliveries made from storage facilities, groundwater recharge enhancement, and riparian and floodplain enhancements. The increased groundwater levels would benefit well users and improve riparian habitat. Decreases in recharge are expected from enhanced conservation (improving conveyance facilities and increasing application efficiencies). These declines are expected to be minor, but could cause localized declines in water levels in wells. No impacts to groundwater quality are anticipated.

Water Quality

The Integrated Plan is designed to provide an overall net benefit to water quality conditions by improving streamflow conditions, riparian areas, and floodplain habitat in the basin. Existing reservoir releases would continue to provide cool water to downstream surface waters. New reservoirs may have the potential to increase temperatures of water released from the dams to downstream surface waters at certain times of the year (late summer/early fall); however, the reservoirs will be operated to minimize and mitigate temperature impacts. There is potential for

existing contamination of soils in some locations to affect water quality if floodplain restoration projects are carried out in those areas, but contaminated soils would be identified and removed to prevent contamination. Preserving watersheds through land acquisition, public land designations, and river corridor designations would protect water quality, contribute to cooler water temperatures, and reduce sedimentation.

Fish

Overall the Integrated Plan is expected to provide benefits to resident and anadromous fish by improving habitat conditions throughout the basin. Streamflow conditions would be improved through water storage projects which will allow alterations to reservoir operations. Fish passage facilities would remove barriers allowing fish access to historic headwater habitat. Fish passage at major dams would also allow the reintroduction of sockeye salmon which were extirpated from the basin by blocked passage. Water conservation, groundwater storage, and market reallocation would provide localized improvements in streamflow and reduce high water temperatures. Targeted watershed protections and habitat enhancement projects (including land acquisition, public land and river corridor designations and floodplain restoration) would preserve watersheds and help maintain aquatic habitat complexity. All of these Integrated Plan elements will provide improved habitat conditions that will benefit fish and help meet fish production and survival targets. These improvements may help fish withstand the impacts of climate change.

The expansion of Bumping Lake Reservoir would inundate areas of bull trout habitat and spawning grounds. The proposed reservoir has been designed to minimize those impacts; however, impacts to bull trout could be substantial. Overall the Integrated Plan is expected to provide improved conditions for bull trout in the Yakima basin.

Vegetation

Under the Surface Storage Element of the Integrated Plan, large areas of shrub-steppe habitat and old-growth forest would be inundated at Wymer Dam and the Bumping Lake Reservoir expansion, respectively. Mitigation for the loss of these vegetation types is difficult or impossible. Reclamation and Ecology recognize the significant impacts of these projects.

Overall the Integrated Plan is expected to have positive impacts for native vegetation communities. Degraded habitat would be restored under the Habitat/Watershed Protection and Enhancement Element and intact vegetation communities would be protected. Protected areas would include acquisition of threatened shrub-steppe habitat and mature forests. The integrated implementation of watershed protection and enhancement activities along with streamflow improvements provided by structural and operational changes, increased surface water storage, and new groundwater storage would provide greater benefits to riparian and wetland vegetation in comparison to a program that implements the elements separately. The integrated approach is more likely to achieve systemwide benefits for vegetation.

Wildlife

The overall impact of the Integrated Plan is expected to be positive for wildlife. There would be negative impacts to wildlife habitat caused by the inundation of shrub-steppe and old-growth forest at Wymer Dam and the Bumping Lake Reservoir expansion respectively. These projects would cause substantial impacts to wildlife, including some threatened and endangered species as discussed below. The combined effects of the proposed elements in the Integrated Plan are expected to result in improved fish and wildlife habitat over time. Many of the proposed

structural and operational changes would not impact habitat because they would be located in previously disturbed areas and would provide flow benefits to fish and other aquatic species. Fish passage facilities would reopen historic territory for anadromous fish and help restore ecosystems upstream of the dams. The Habitat/Watershed Protection and Enhancement Element would improve degraded habitat and protect large areas of intact habitat, including declining shrub-steppe habitat surrounding the Wymer Reservoir site and mature forests threatened with development.

Threatened and Endangered Species

Construction associated with structural and operational changes to existing facilities and water conservation projects is not expected to result in impacts because it would occur in previously disturbed areas or built environments with minimal habitat for listed species. In addition, the projects would provide flow benefits to Middle Columbia River (MCR) steelhead, bull trout and other aquatic species. Fish passage facilities would reopen historic territory for MCR steelhead, help restore ecosystem help upstream of the dams, allow reintroduction of extirpated species, and allow isolated bull trout populations to be connected. The Habitat/Watershed Protection and Enhancement Element of the Integrated Plan would result in a net improvement in conditions for greater sage-grouse, northern spotted owl, MCR steelhead, bull trout, and other wildlife species by protecting and enhancing existing high value habitat areas within the Yakima basin. Further, additional surface storage in the basin would provide positive impacts through increased flows for anadromous and resident fish passage and survival during drought years. The integrated implementation of fish habitat enhancement projects and the streamflow improvements provided by structural and operational changes, increased surface water storage, new groundwater storage, and watershed protection and enhancement activities would provide greater benefits to listed fish and wildlife species in comparison to a program that implements the elements separately.

Wymer Dam and the expansion of Bumping Lake Reservoir would negatively impact listed fish and wildlife. Wymer Dam would inundated a large area of shrub-steppe habitat used by the greater sage-grouse, a Federal candidate species. The Bumping Lake Reservoir expansion would inundate spawning areas used by bull trout, especially on Deep Creek and large areas of old-growth forest used by the northern spotted owl.

Reclamation and Ecology acknowledge the potential significant impacts to these species and will coordinate with NMFS, the Service, and WDFW to minimize those impacts and develop mitigation strategies.

Climate Change

As an integrated package, this alternative would provide multiple benefits to water supply, agriculture, and fish while improving the ability of water managers to adapt to future climate changes. Approaching management on a basinwide level could provide additional consistency in water management across agencies and jurisdictions.

Additional water storage and improved irrigation operations would provide a more reliable water supply for agriculture during dry periods. Improved streamflows and fish habitat, along with access to upper river tributaries, would produce enhanced fish populations that would be better able to withstand habitat changes caused by climate change. As climate change places new stresses on water resources and aquatic habitats in the future, the Yakima River basin's upper watersheds will become even more vital to ecosystem health and water supply. Reopening

historic fish habitat through fish passage facilities will improve conditions for anadromous fish. Acquisition of a 46,000-acre tract in the middle and lower Teanaway River basin including ponderosa pine forest would be particularly significant due to the limited range and vulnerability to climate change of this forest type.

Recreation

Implementation of most of the projects and elements of the Integrated Plan would result in short-term disruptions to facilities due to access limitations during construction; however, most of these impacts would be temporary and disruptions would cease following completion of construction. Long-term impacts to recreational resources could occur associated with land acquisition, which could limit some recreational uses and improve others. Designation of areas as Wilderness could limit some recreational uses such as motorized vehicles or mountain biking. Proposed National Recreation Areas, Wild and Scenic Rivers, and other watershed protection actions would enhance recreation opportunities. Acquisition of private lands could allow increased recreational activities on lands currently closed by private ownership.

Recreational facilities at Bumping Lake Reservoir would be significantly impacted by eliminating shoreline recreational facilities and access to trails. It is anticipated that some of the recreational facilities that would be eliminated could be replaced over time.

However, it may not be possible to replace all impacted facilities at or near Bumping Lake Reservoir. Reclamation would coordinate with the USFS to determine appropriate mitigation for displaced recreational facilities. Many of the proposed projects in the Integrated Plan would improve riparian and fish habitat. This would have a beneficial impact on recreation by improving fishing and wildlife viewing opportunities.

Land and Shoreline Use

The Cle Elum Dam pool raise, Keechelus-to-Kachess pipeline, Bumping Lake enlargement, and Kachess Reservoir inactive storage projects would require acquisition of land or easements, but are not anticipated to have a significant impact on land use.

Approximately 4,000 acres of private land would need to be purchased for the Wymer Dam project and changed from forest and rangeland uses to water storage, which would be a significant change in land use. Habitat enhancement projects could require acquisition of property or easements, but they would be located on property owned by willing participants and would be compatible with existing land uses.

Watershed protection and enhancement activities are likely to cause land use impacts when properties or conservation easements are acquired for protection; however, all properties would be acquired from willing sellers. Logging or other relatively high intensity activities would likely be curtailed on these acquired properties, although the intent is to maintain historic uses to the extent that they are compatible with habitat protection goals. The types and intensities of recreation on the acquired properties could change depending on how the land is managed. Wilderness or Wild and Scenic River designations could also place restrictions on existing land uses. The Market Reallocation Element could result in changes in land use as water rights are transferred from one area and land use to another.

Cultural Resources

Projects undertaken as part of the Integrated Plan have the potential to cause long-term impacts to cultural resources located within the footprint of any new ground-disturbing construction

activities. Construction impacts would include access and staging areas as well as any off-site mitigation areas. The main non-construction long-term impact for most elements would be erosion of cultural resources. Potential impacts to cultural resources would be evaluated through site-specific studies and consultation with the Washington State Department of Archaeology and Historic Preservation and affected Tribes to develop appropriate mitigation measures.

Table A-4. Comparison of Impacts for Yakima Basin Alternatives

| Resource | Preferred Alternative |
|-------------------------|--|
| Earth | Short-term: Construction-related erosion and sedimentation. Long-term: Loss of some earth-related resources, permanent landscape modifications, and changes in stream channel and floodplain conditions. Disruption of sedimentation downstream of storage facilities. Decrease in erosion potential in conservation areas. |
| Surface Water Resources | Short-term: Potential disruption during construction. Long-term: Increased TWSA, end-of- season reservoir storage, annual diversions, and improved streamflow. |
| Groundwater | Short-term: Temporary reduction of usability of wells in the immediate vicinity of construction sites. Long-term: Groundwater levels and quantities would increase with potential decreases near canal lining sites. |
| Water Quality | Short-term: Risk of erosion and contaminants from construction. Long-term: Net benefit to water quality by improving streamflow conditions, riparian areas, and floodplain habitat. New reservoirs have potential to increase temperatures of water released from the dams in downstream surface waters at certain times of the year (late summer/early fall); however, the reservoirs will be operated to minimize and mitigate temperature impacts. Preserving watersheds through land acquisition, public land designations, and river corridor designations would protect water quality, contribute to cooler water temperatures, and reduce sedimentation. |
| Hydropower | Short-term: No impact. Long-term: Reduction of hydroelectric generation at Roza and Chandler Powerplants and the Drop 2 and Drop 3 powerplants in the Wapato Irrigation Project. |
| Fish | Short-term: Temporary habitat disturbance, construction-related impacts. Long-term: Overall benefits from fish passage facilities, improved streamflows and habitat/watershed protection and enhancement projects. Combined elements would contribute to flow conditions resembling natural flows and improve fish passage and habitat throughout historic ranges. |
| Vegetation | Short-term: Temporary disruption of vegetation, including shrub-steppe and mature forest vegetation Long-term: Negative impacts, including habitat loss, from expanded reservoirs, but an overall positive impact due to habitat/watershed protection and enhancement. Permanent removal of some areas of shrub-steppe and mature forest vegetation. |
| Wildlife | Short-term: Temporary disruption of habitat during construction. Substantial habitat impact could occur if replacement habitat is unavailable. Short term impacts for some species could be substantial at Wymer Dam and expansion of Bumping Lake Reservoir. Long-term: Negative impacts to habitat from new or expanded reservoirs. |

| Resource | Preferred Alternative |
|-----------------------------------|--|
| | Overall positive impact for wildlife from habitat/watershed protection and enhancement. Permanent impact on shrub-steppe and mature forest vegetation. |
| Threatened and Endangered Species | Short-term: Temporary disruption of habitat during construction. Removal of some areas of shrub-steppe and mature forest habitat. Long-term: Negative impacts to species that may be displaced from the area of a new or expanded reservoir. Overall positive impacts from fish passage facilities, improved streamflows, and habitat/watershed protection and enhancement projects. Permanent impact on shrub-steppe and mature forest vegetation; however, land acquisition and habitat enhancement components are intended to result in a net improvement in conditions for listed fish and wildlife species |
| Visual Resources | Short-term: Presence of construction equipment and activities during construction would generally create an unattractive visual setting during the construction period. Long-term: Visual impacts would be primarily of local scale and are not expected to be significant with the potential exception of new and expanded reservoirs. |
| Air Quality | Short-term: Minor dust and emissions associated with construction and traffic. Long-term: Some projects may cause long term impacts from emissions associated with stationary pollutant sources, although impacts are not expected to be significant. |
| Climate Change | Short-term: Increases in greenhouse gas emissions associated with construction of individual projects. Long-term: Multiple benefits to water supply, agriculture, and fish, improving the ability of water and fisheries managers to adapt to future climate change. |
| Noise | Short-term: Increased noise from construction equipment and activities, including blasting associated with certain individual projects. Long-term: Some equipment or vehicles may be audible in the vicinity of projects. |
| Recreation | Short-term: Temporary access restrictions or nuisance dust and noise. Long-term: Some recreational facilities and resources at Bumping Lake Reservoir would be eliminated and it may not be possible to relocate. Many projects would improve fishing and wildlife viewing opportunities. Motorized vehicle use would be restricted in designated Wilderness. Proposed National Recreation Areas and other watershed protection actions would enhance recreational opportunities. |
| Land and Shoreline Use | Short-term: Temporary access restrictions caused by construction. Property or conservation easement acquisitions of private property. Long-term: Property and easement acquisitions, shift from forest and rangeland to water storage in Wymer Reservoir area, potential land use changes due to market reallocation. Potential decreased tax base with the conversion of private lands to public ownership. |
| Utilities | Short-term: Potential temporary disruption during construction. Long-term: Reduced supply of electricity due to power subordination and increased demand from new equipment. |
| Transportation | Short-term: Temporary traffic delays and possible detours, in some cases for up to 3 to 5 years for major projects. Long-term: Bumping Lake Enlargement would eliminate some Forest Roads and reduce access to some National Forest areas. |

| Resource | Preferred Alternative |
|-----------------------|--|
| Cultural Resources | <p>Short-term: Potential impacts on historic structures, traditional cultural properties, or sacred sites from increased dust, vibration, noise, or construction activity. Construction could cause permanent impacts to cultural resources.</p> <p>Long-term: Projects have the potential to cause long-term impacts on cultural resources located within the footprint of any new ground-disturbing construction activities. These impacts could be substantial where habitat improvements projects are located in areas with a high likelihood for significant Native American cultural resources. The potential impacts on cultural resources would likely be higher than under the No Action Alternative because of the large-scale projects that are likely to be constructed.</p> <p>Ground disturbance, erosion, and increased vandalism of cultural resources.</p> <p>Potential impacts to historic structures.</p> |
| Socioeconomics | <p>Short-term: Project-related funding would likely have short-term positive impacts on jobs and incomes and reduced uncertainty and risk.</p> <p>Long-term: Potential increase in the value of goods and services derived from the basin's water and related resources in the long term. Reduction in uncertainty and risk.</p> |
| Environmental Justice | <p>Most projects are not expected to cause disproportionate impacts to environmental justice communities.</p> <p>Additional environmental justice analysis would be required during project-level analysis.</p> |